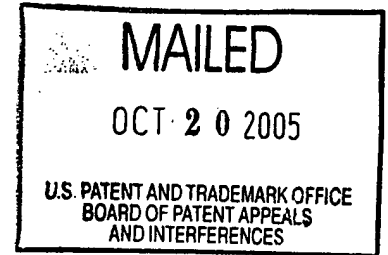


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte QI WANG
and SANDOR NAGY



Appeal No. 2005-2513
Application No. 10/065,636

ON BRIEF

Before PAK, WALTZ and DELMENDO, **Administrative Patent Judges.**
WALTZ, **Administrative Patent Judge.**

DECISION ON APPEAL

This is a decision on an appeal from the primary examiner's refusal to allow claims 21, 22, 26, 28, 29, 31, 33, 38 and 39 as amended subsequent to the final rejection (Brief, page 2, ¶(4)). Claims 34 through 37 have been indicated as allowed by the examiner, while the remaining claims 23 through 25, 27, 30, 32 and 40 pending in this application stand withdrawn from consideration by the examiner as directed to a non-elected invention (Supplemental Answer dated Feb. 7, 2005, page 2, ¶(3)). We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellants, the invention is directed to a method of inhibiting the oxidation of poly(vinylchloride), polyethylene, polycarbonate, polyether, or polyester, all of which can turn yellow after exposure to gamma radiation, by adding about 0.005 to about 10 phr (parts of additive per 100 parts of the polymer) of a specified non-phenolic antioxidant (Brief, page 2, ¶(5)). A copy of representative independent claim 21 is attached as an Appendix to this decision.

The examiner has relied upon the following references as evidence of unpatentability:

Jaeger	1,941,474	Jan. 02, 1934
Fielding et al. (Fielding)	4,082,716	Apr. 04, 1978

The following rejections are before this merits panel for review in this appeal:

(1) claims 21, 22, 26, 28, 29, 31 and 33 stand rejected under 35 U.S.C. § 112, first paragraph, for lack of enabling disclosure (Supplemental Answer, page 3);

(2) claims 21, 22, 26, 28, 29, 31 and 33 stand rejected under 35 U.S.C. § 102(b) as anticipated by Fielding (*id.* at page 4);

(3) claims 21, 22, 26, 28, 29 and 33 stand rejected under 35 U.S.C. § 102(b) as anticipated by Jaeger (*id.*);¹ and

(4) claims 31, 38 and 39 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Jaeger (*id.* at page 5).

Based on the totality of the record, including due consideration of the arguments in the Brief, Reply Brief, and Supplemental Reply Brief, as well as the opposing arguments in the final Office action, the Answer and Supplemental Answer, we *affirm* the examiner's rejection of claims 31, 38 and 39 under section 103(a) over Jaeger essentially for the reasons in the Supplemental Answer and those reasons set forth below. We *reverse* all other rejections on appeal essentially for the reasons stated in the Brief, Reply Brief, and Supplemental Reply Brief, as well as those reasons stated below. Accordingly, the decision of the examiner to reject the appealed claims is *affirmed-in-part*.

¹We note that the final rejections under section 102(b) over Fielding and Jaeger were withdrawn by the examiner in the Answer dated Aug. 11, 2004 (page 3, ¶(6)). However, in view of the Remand to the Examiner dated Jan. 13, 2005, the examiner has vacated the Answer dated Aug. 11, 2004 (Supplemental Answer, page 1). Accordingly, we consider the rejections repeated in the Supplemental Answer as the rejections on appeal. We further note that appellants have made no comments on the reinstatement of these rejections other than to argue the merits of each rejection (Supplemental Reply Brief dated Feb. 24, 2005).

OPINION

A. The Rejection under § 112, ¶1

The examiner finds that there is "a lack of disclosure in the specification to enable one skilled in the art to obtain or make **all** of the antioxidants being claimed." Supplemental Answer, page 4. The examiner further finds that the specification fails to refer to where all the compounds may be obtained commercially or how the "commercially available" compounds may be prepared. *Id.* Accordingly, the examiner concludes that there is no "reasonable correlation" between the scope of the compounds claimed and the scope of enablement, requiring "undue experimentation" to prepare at least some of the compounds within the scope of the claims (*id.*).

The initial burden of proof rests with the examiner in establishing a *prima facie* case of unpatentability. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). In rejections based on lack of enabling disclosure, the burden rests with the examiner to establish that "undue experimentation" is required to practice the invention as broadly claimed. See *In re Wright*, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Undue experimentation may be established by evaluation of several factors, including the number of

examples in the specification, guidelines and teachings of the specification, level of ordinary skill in the art, and scope of the claims. See *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

On the record in this appeal, we determine that the examiner has failed to evaluate and consider the factors that would have established "undue experimentation" (Supplemental Answer, pages 3-4). Contrary to the decision in parent Application No. 09/223,710 (Appeal No. 2001-0852; decision, pages 9-12), the examiner has not evaluated the factors discussed in *Wands, supra*, but merely finds that the present specification, as amended to supplement the parent application, does not teach "the preparation of **each** compound within the scope of the claims nor does it give citations for obtaining **each** compound" (Supplemental Answer, page 6). A rejection under the enablement requirement of section 112 cannot be sustained simply because the embodiments of the specification do not contain examples explicitly covering the full scope of the claim language. See *Union Oil Co. v. Atl. Richfield Co.*, 208 F.3d 989, 997, 54 USPQ2d 1227, 1233 (Fed. Cir. 2000); *In re Angstadt*, 537 F.2d 498, 502, 190 USPQ 214, 218 (CCPA 1976). This is because the patent specification is written for a person of skill in the art, and such a person comes with the

knowledge of the relevant prior art. See *In re GPAC*, 57 F.3d 1573, 1579, 35 USPQ2d 1116, 1121 (Fed. Cir. 1995). The examiner concludes that appellants have not provided sufficient enablement for preparing all compounds within the scope of the claims, alleging that one of ordinary skill in the art would still require undue experimentation "to prepare at least some of the antioxidants within the scope of the claims" (Supplemental Answer, sentence bridging pages 6-7). However, the examiner has not identified *which* antioxidants would require "undue experimentation" to prepare or *why* these compounds would require other than routine experimentation. See *PPG Industries, Inc. v. Guardian Indus. Corp.*, 75 F.3d 1558, 1564, 37 USPQ2d 1618, 1623 (Fed. Cir. 1996) (The fact that some experimentation is necessary does not preclude enablement, as long as it is not unduly extensive). Additionally, we note that the examiner has allowed claims 34 through 37, thus implicitly admitting that these claims are enabled (Supplemental Answer, page 2). The examiner has not responded to appellants' argument that the additional antioxidants within the scope of claim 21 are also enabled (Reply Brief, page 2).

For the foregoing reasons and those stated in the Brief, Reply Brief, and Supplemental Reply Brief, we determine that the

examiner has not met the initial burden of proof in establishing that appellants have not fulfilled the enablement requirement of section 112. Therefore we cannot sustain the examiner's rejection of claims 21, 22, 26, 28, 29, 31 and 33 under 35 U.S.C. § 112, first paragraph.

B. The Rejections under § 102(b)

(1) The Rejection over Fielding

The examiner finds that Fielding, in col. 1, ll. 50-52, and col. 2, ll. 1-3, teaches a process of combining "polymers" with 0.5 to 15% phthalide (Supplemental Answer, page 4). In response to appellants' argument that the specific polymer of Fielding is now excluded from the claims (Brief, page 4), the examiner finds that "at least one of the antioxidants of Fielding still read on at least one of applicant's [sic] claimed antioxidants and Fielding's polymer still reads on at least one of applicant's [sic] polymers." Supplemental Answer, page 7. However, the examiner fails to identify, and we do not find, any polymer described by Fielding that is within the scope of the claims.

We determine that Fielding discloses the combination of "phthalide" with polypropylene, including various additives such as ethylene-propylene rubbers (e.g., see col. 1, ll. 51-52; col. 1, ll. 62-68; and col. 2, ll. 20-27). We also determine that

Fielding does not define the word "phthalide" and thus we interpret this word as being limited to the ordinary meaning of phthalide, i.e., 1(3H)-isobenzofuranone (9Cl), registry no. 87-41-2 (see the formula on page 2 of appellants' specification). Therefore we also determine that the examiner has failed to establish that Fielding describes the claimed subject matter within the meaning of section 102(b), since claim 21 on appeal is limited to poly(vinylchloride), polycarbonates, polyethers, and mixtures thereof when the antioxidant is "phthalide."

Accordingly, for the foregoing reasons and those stated in the Brief, Reply Brief, and Supplemental Reply Brief, we reverse the examiner's rejection of claims 21, 22, 26, 28, 29, 31 and 33 under section 102(b) over Fielding.

(2) The Rejection over Jaeger

The examiner finds that Jaeger teaches a process of combining "polymers" with about 3 to 10% of a variety of phthalides as set forth in the formula of claim 1 of the reference (Supplemental Answer, page 5). In response to appellants' argument that Jaeger fails to mention any one of the five polymers claimed (Brief, page 6), the examiner states that the "chemistry/structure of the polymers recited in applicant's [sic] claims are so broad and diverse" that appellants' grouping

is equally generic as the teaching in Jaeger that the plasticizers are useful in "various plastic composition and coating compositions, notably those containing artificial resins (synthetic polymers) **of the thermoplastic type**" (Supplemental Answer, paragraph bridging pages 7-8). As such, the examiner finds that the generic teaching in Jaeger is sufficient to anticipate the generic teaching in appellants' claims (*id.* at page 8). We disagree.

To anticipate under section 102(b), each and every limitation of the claims must be described either expressly or inherently by the reference. See *In re King*, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986). Although the description of a species in a reference constitutes an anticipation of the genus as claimed, the converse is not necessarily true. See *In re May*, 574 F.2d 1082, 1089, 197 USPQ 601, 607 (CCPA 1978) (Disclosure of a species by a prior art reference within the genus of the claim is technical anticipation of the claim); *In re Meyer*, 599 F.2d 1026, 1031, 202 USPQ 175, 179 (CCPA 1979) (The genus "alkaline chlorine or bromine solution" does not identically disclose or describe, within the meaning of section 102, the species alkali metal hypochlorite, since the genus would include an untold number of species); *cf.*, *In re*

Petering, 301 F.2d 676, 681-82, 133 USPQ 275, 280 (CCPA 1962); *In re Schaumann*, 572 F.2d 312, 315-17, 197 USPQ 5, 9 (CCPA 1978); *In re Ruschig*, 343 F.2d 965, 974, 145 USPQ 274, 282 (CCPA 1965); *In re Arkley*, 455 F.2d 586, 587, 172 USPQ 524, 526 (CCPA 1972); and *In re Sivaranakrishnan*, 673 F.2d 1383, 1384, 213 USPQ 441, 442 (CCPA 1982). As admitted by the examiner, Jaeger does not explicitly teach the additive compounds to be useful with the specific polymers recited in the claims (Supplemental Answer, page 5; Supplemental Reply Brief, page 1). The examiner has failed to explain how the generic teaching of Jaeger describes, or puts into the possession of the public, the claimed polymer species within the meaning of section 102(b). Accordingly, we determine that the disclosure of "thermoplastic resins" by Jaeger does not constitute an anticipation of the individual species of polymers recited in claim 21 on appeal. Therefore we cannot sustain the examiner's rejection of claims 21, 22, 26, 28, 29 and 33 under 35 U.S.C. § 102(b) over Jaeger.

C. The Rejection under § 103(a)

The examiner, as discussed above, admits that Jaeger does not explicitly teach the softener additives to be useful with the specific polymers recited in the claims (Supplemental Answer,

page 5).² However, the examiner finds that Jaeger's teaching that the additive softener compounds may be used with "various plastic compositions and coating compositions, notably those containing artificial resins of the thermoplastic type" (Jaeger, page 1, ll. 5-8; Supplemental Answer, page 8). We determine that one of ordinary skill in this art would have known which polymers have thermoplastic properties.³ Accordingly, we agree with the examiner that it would have been obvious to one of ordinary skill in this art at the time of appellants' invention to incorporate the phthalide softener compounds of Jaeger into any thermoplastic polymers, including the specific polymers recited in the claims on appeal.

²Although appellants state that claims 31 and 34 to 39 do not stand or fall with the remaining claims, there is no statement that claims 31, 38 and 39 do not stand or fall together (Brief, page 3). Furthermore, appellants fail to present any specific reasons for the separate patentability of any of these claims. See 37 CFR § 1.192(c)(7) (2003); *In re McDaniel*, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002). Accordingly, we select claim 31 from this grouping and limit our consideration to this claim.

³Appellants admit that all of the claimed polymers are thermoplastic (Supplemental Reply Brief, page 2). We do not consider the examiner's citation of additional references as part of the evidence of obviousness (Supplemental Answer, page 8), since these references were not recited in the statement of the rejection. See *In re Hoch*, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970).

Appellants argue that despite Jaeger's characterization of his resins as "thermoplastic," the specific resins are believed to be thermoset resins (Brief, pages 6-7). Appellants further argue that Jaeger uses the term "thermoplastic" in a discussion of the prior art but claims resins which "are capable of being hardened by heat," i.e., thermoset (Reply Brief, pages 5-6).

Appellants' arguments are not persuasive. Although Jaeger does teach that it was necessary to add plasticizers or softeners to thermoplastic resins "[i]n the past" (page 1, ll. 5-8), Jaeger later teaches that his invention is not limited to natural resins "but includes the compositions recited on page 1 and similar products," i.e., thermoplastic resins (Jaeger, page 3, ll. 6-8). Furthermore, Jaeger teaches that the claimed term "resinous" is used to cover resins such as shellac and "also the synthetic resinoids which are capable of being hardened by heat" (page 3, ll. 3-6, underlining added). Therefore, contrary to appellants' argument, Jaeger does not limit his invention to thermoset resins but includes thermoplastic and thermoset resins.

For the foregoing reasons and those stated in the final Office action and the Supplemental Answer, we determine that the examiner has established a *prima facie* case of obviousness in view of the reference evidence. Based on the totality of the

record, including due consideration of appellants' arguments, we determine that the preponderance of evidence weighs most heavily in favor of obviousness within the meaning of section 103(a). Therefore we affirm the examiner's rejection of claims 31, 38 and 39 under 35 U.S.C. § 103(a) over Jaeger.

D. Other Issues

Upon the return of this application to the jurisdiction of the examiner, the examiner and appellants should consider the following issues.

The rejection of claims 31, 38 and 39 under section 103(a) over Jaeger has been affirmed. It is noted that claim 31 depends on claim 21, which was not included in the rejection on appeal. Accordingly, the examiner and appellants should consider whether at least claim 21 also should be rejected under section 103(a) over Jaeger.

The examiner should request any product information known to appellants from the "commercially available" compounds described in the specification to ascertain if these commercially available compounds have been used as additives for polymers.

The examiner and appellants should consider the patentability of compounds within the scope of the claims and their structural similarity to additives of the prior art

references, including Fielding and Solera (specification, ¶[0004]). The claimed "phthalide" is limited to the compound defined in the specification at ¶[0003], and thus alkyl-substituted phthalides would not be excluded from claim 21 regardless of the provisos (i.e., the polymer could be polyethylene). Accordingly, the examiner and appellants should consider the patentability of the claimed subject matter in view of structurally similar antioxidant additives.

E. Summary

The rejection of claims 21, 22, 26, 28, 29, 31 and 33 under 35 U.S.C. § 112, first paragraph, is reversed. The rejection of claims 21, 22, 26, 28, 29, 31 and 33 under 35 U.S.C. § 102(b) over Fielding is reversed. The rejection of claims 21, 22, 26, 28, 29 and 33 under 35 U.S.C. § 102(b) over Jaeger is reversed.

The rejection of claims 31, 38 and 39 under 35 U.S.C. § 103(a) over Jaeger is affirmed. Accordingly, the decision of the examiner is affirmed-in-part.

AFFIRMED-IN-PART

CHUNG K. PAK
Administrative Patent Judge

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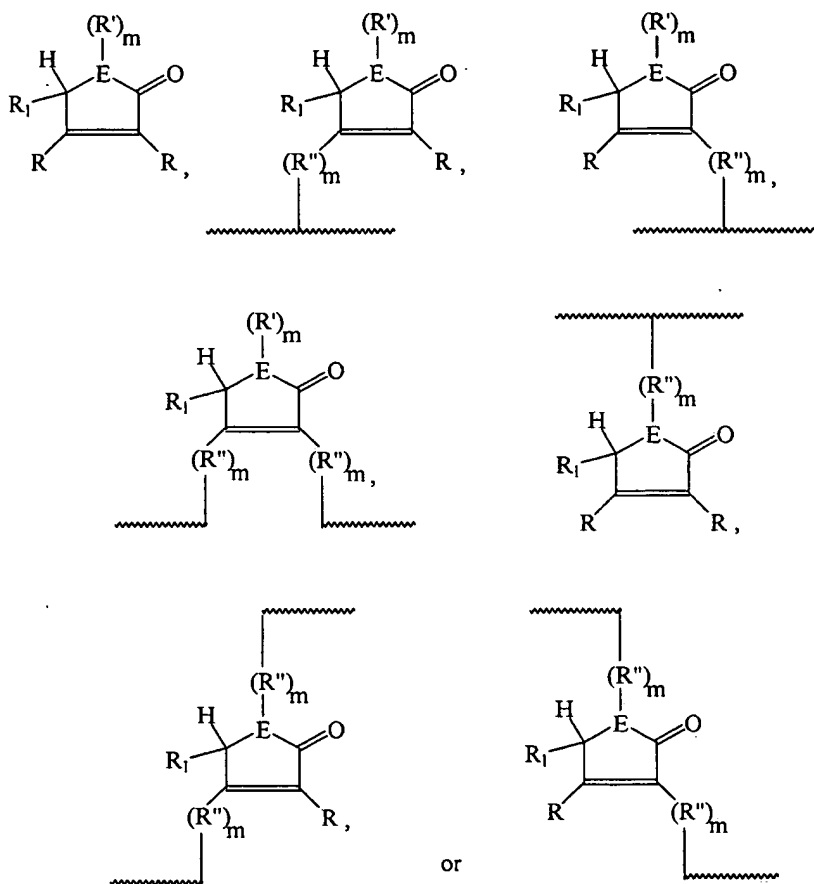
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Appendix

Claim 21. A method of inhibiting the oxidation of a polymer comprising adding to a polymer about 0.005 to about 10 phr of an antioxidant having the general formula



where, when an antioxidant is not a phthalide, said polymer is selected from the group consisting of poly(vinylchloride), polycarbonates, polyethers, polyethylene,

polypropylene, and mixtures thereof and, when said antioxidant is a phthalide, said polymer is selected from the group consisting of poly(vinylchloride), polycarbonates, polyethers, and mixtures thereof, and where E is O, S, or N; R₁ is H, R', OR', SR', OP(R')₂, or COR'; each R is independently selected from R₁, alkylene from C₁ to C₁₂, aminoalkyl from C₁ to C₁₂, and hydroxyalkyl from C₁ to C₁₂; R' is alkyl from C₁ to C₁₂ or aryl, alkylaryl, or aralkyl from C₆ to C₁₂; R'' is G, GO, GS, GNH, NHG, NHGO, NHGNH, NHGS, OG, OGO, OGNH, OGS, SGO, SGNH, or SGS; G is alkylene from C₁ to C₁₂, arylene from C₆ to C₁₂, alkylarylene from C₇ to C₁₂, or arylalkylene from C₇ to C₁₂; m is 0 if E is O or S and is 1 if E is N; and two R groups can join to form an alicyclic ring or an aromatic ring or an R group and an R₁ group can join to form an alicyclic ring.